

03050201-010

(Lake Moultrie)

General Description

Watershed 03050201-010 is located in Berkeley County and consists primarily of *Lake Moultrie* and its tributaries. The watershed occupies 87,731 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Yauhannah-Yemassee-Rains-Lynchburg series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 65.2% water, 18.5% forested land, 7.2% forested wetland, 4.2% urban land, 3.3% scrub/shrub land, 1.1% agricultural land, and 0.5% barren land.

Lake Moultrie was created by diverting the Santee River (Lake Marion) through a 7.5 mile Diversion Canal filling a levee-sided basin and impounding it with the Pinopolis Dam. South Carolina Public Service Authority (Santee Cooper) oversees the operation of Lake Moultrie, which is used for power generation, recreation, and water supply. The 4.5 mile Tail Race Canal connects Lake Moultrie with the Cooper River near the Town of Moncks Corner, and the Rediversion Canal connects Lake Moultrie with the lower Santee River. Duck Pond Creek enters the lake on its western shore. The Tail Race Canal accepts the drainage of California Branch and the Old Santee Canal. There are a total of 131.4 stream miles in this watershed, all classified FW. Additional natural resources in the watershed include the Dennis Wildlife Center near the Town of Bonneau, Sandy Beach Water Fowl Area along the northern lakeshore, the Santee National Wildlife Refuge covering the lower half of the lake, and the Old Santee Canal State Park near Monks Corner.

Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
CSTL-079	P	FW	DIVERSION CANAL AT SC 45 12.6 MI W OF ST STEPHENS
SC-025	SC	FW	DIVERSION CANAL AT SC 45 12.6 MI W OF ST STEPHENS
SC-043	SC	FW	LAKE MOULTRIE TRIB AT SE CORNER OF CROSS GEN. STA.
SC-026	SC	FW	LAKE MOULTRIE TRIB 0.4 MI UPSTREAM OF SC 6
SC-027	SC	FW	LAKE MOULTRIE IN SW QUADRANT
SC-034	SC	FW	DUCK POND CREEK AT SC 6
SC-028	SC	FW	LAKE MOULTRIE IN NW QUADRANT
SC-029	SC	FW	LAKE MOULTRIE IN SOUTHERN QUADRANT
SC-030	SC	FW	LAKE MOULTRIE MID-POINT AT USFWS CHANNEL MARKER 17
SC-031	SC	FW	LAKE MOULTRIE IN NORTHERN QUADRANT
SC-046	SC	FW	LAKE MOULTRIE IN SE QUADRANT OF LAKE
SC-032	SC	FW	LAKE MOULTRIE IN SE QUADRANT AT USFWS CHANNEL MARK. 2
SC-033	SC	FW	TAILRACE CANAL AT DOCK RESTAURANT BOAT SLIP
CSTL-062	P	FW	TAIL RACE CANAL AT US 52 & 17A BELOW LAKE MOULTRIE

Diversion Canal - This site is sampled by both SCDHEC (**CSTL-079**) and SCPSA (**SC-025**). Aquatic life uses are fully. A significant decreasing trend in dissolved oxygen in the SCDHEC samples suggests degrading conditions for this parameter. There was also a significant decreasing trend in pH.

Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations in the SCDHEC samples suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Lake Moultrie - Lake Moultrie has a watershed covering 306.9 km² (up to the Lake Marion Dam), and a surface area of 24,443.5 hectares with a maximum and mean depth of 23.0m and 6.1m, respectively. Hydropower generation, recreational uses, and domestic water supply have been impaired as a result of abundant aquatic macrophyte growth. Various areas of the lake have been treated with aquatic herbicides since 1989. Beginning in 1993, grass carp were introduced as an additional treatment to control the aquatic plants. A total of 50,000 grass carp were introduced to upper and midlake areas in 1993, and 150,000 more were added in 1994 to several locations in the upper, mid, and lower lake regions. A total of 65,000 fish were stocked in 1995 to upper and midlake areas, 42,000 were stocked to the upper lake in 1996, and no fish were stocked from 1997-1999. The SCPSA samples seven locations on Lake Moultrie and aquatic life and recreational uses are fully supported at all sites.

Tail Race Canal - Both SCDHEC (**CSTL-062**) and SCPSA (**SC-033**) have monitoring sites along the Tail Race Canal. Aquatic life uses are partially supported at SC-033, due to pH excursions. Recreational uses are fully supported. Aquatic life uses are fully supported at CSTL-062; however there is a significant decreasing trend in dissolved oxygen concentration and a high concentration of zinc was measured in 1996. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Old Santee Canal State Park Swimming Lake - The lake has been treated annually for the past 10 years with aquatic herbicides in an attempt to control aquatic macrophyte growth that has impaired the lake's recreational uses. In addition, *Tilapia* (200 fish/vegetated acre or 2,000 fish) and grass carp (15 fish/acre or 150 fish) were stocked in 1995, *Tilapia* (2,000 fish) were restocked in 1996, and grass carp (150 fish) were restocked in 1997.

Lake Moultrie Tributary (SC-043) - This site is sampled by the SCPSA. Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Lake Moultrie Tributary (SC-026) - This site is sampled by the SCPSA. Aquatic life uses are fully supported. Recreational uses are not supported due to fecal coliform bacteria excursions.

Duck Pond Creek (SC-034) - This site is sampled by the SCPSA. Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations.

Although pH and dissolved oxygen excursions occurred, they were typical of values seen in such systems. Recreational uses are partially supported due to fecal coliform bacteria excursions.

A fish consumption advisory has been issued by the Department for mercury and includes the Diversion Canal, Lake Moultrie, and the Tail Race Canal within this watershed (see advisory p.62).

NPDES Program

Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT</i>	<i>NPDES# TYPE LIMITATION</i>
DIVERSION CANAL SC PUB. SERV. AUTH./CROSS GEN. STA. PIPE #: 003 FLOW: 0.079 PIPE #: 001,02A,02B,004 FLOW: M/R	SC0037401 MAJOR INDUSTRIAL EFFLUENT
LAKE MOULTRIE US NAVY/SHORT STAY REC. PIPE #: 001 FLOW: M/R	SC0024708 MINOR INDUSTRIAL EFFLUENT
LAKE MOULTRIE BERKELEY COUNTY/CROSS HIGH SCHOOL PIPE #: 001 FLOW: 0.0158	SC0027103 MINOR DOMESTIC EFFLUENT
TAIL RACE CANAL SC PUB. SERV. AUTH./JEFFERIES STEAM STA. PIPE #: 001 FLOW: 0.006 PIPE #: 002 FLOW: 376 PIPE #: 003,004,006,007 FLOW: M/R	SC0001091 MAJOR INDUSTRIAL EFFLUENT EFFLUENT
TAIL RACE CANAL C.R. BARD, INC. PIPE #: 001 FLOW: 0.382	SC0035190 MAJOR INDUSTRIAL EFFLUENT
TAIL RACE CANAL SC PUB. SERV. AUTH./MONCK'S CORNER WTP PIPE #: 001 FLOW: M/R	SCG641011 MINOR DOMESTIC EFFLUENT
DUCK POND CREEK BERKELEY COUNTY/CROSS ELEM SCHOOL PIPE #: 001 FLOW: 0.015 WQL FOR BOD5, NH3-N, DO	SC0034479 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camping Facilities

<i>FACILITY NAME/TYPE RECEIVING STREAM</i>	<i>PERMIT # STATUS</i>
LIONS BEACH CAMPGROUND/FAMILY	08-307-0010

LAKE MOULTRIE	ACTIVE
BONNEAU BEACH CAMPGROUND/FAMILY LAKE MOULTRIE	08-307-0016 ACTIVE

Mining Activities

<i>MINING COMPANY</i>	<i>PERMIT #</i>
<i>MINE NAME</i>	<i>MINERAL</i>
CDS INVESTMENTS	0698-15
SANTEE CIRCLE FARMS MINE	SAND

Land Disposal Activities

Landfill Facilities

<i>SOLID WASTE LANDFILL NAME</i>	<i>PERMIT #</i>
<i>FACILITY TYPE</i>	<i>STATUS</i>
SC PUB. SERV. AUTH./CROSS GEN. INDUSTRIAL	085801-1601 (083337-1601, IWP-186) ACTIVE
SC PUB. SERV. AUTH./CROSS GEN. INDUSTRIAL	IWP-185 CLOSED
SC PUB. SERV. AUTH. CONSTRUCTION	083322-1201 (CWP-034) -----

Water Supply

<i>WATER USER (TYPE)</i>	<i>REGULATED CAPACITY (MGD)</i>
<i>STREAM</i>	<i>PUMPING CAPACITY (MGD)</i>
GEORGIA-PACIFIC CORP. (I)	0.43
LAKE MOULTRIE	-----
C.R. BARD, INC. (I)	1.44
TAIL RACE CANAL	-----
SANTEE COOPER REG. WTR. AUTH. (M)	30.1
LAKE MOULTRIE	38.0

Growth Potential

There is a moderate potential for growth in this watershed. Lake Moultrie contributes significantly to the growth in the area in terms of fishery tourism and residential development. The Towns of Monk Corner, Cross, and Bonneau should benefit from the lake-based growth. Monks Corner provides both water and sewer services and may encourage future growth. The Pinopolis peninsula has low density residential, including several historic structures, and a Santee Cooper semi-private recreation/conference center. There is a regional domestic water supply system on Lake Moultrie near

Lions Beach (water withdrawn from Pinopolis cove) that serves the Berkeley County Water and Sewer Authority, Moncks Corner, Goose Creek, and the Summerville Public Service Area.